

CLAIMS

1. A method for producing a cathode material for a secondary battery, comprising the steps of mixing a compound which releases phosphate ions in a solution with water and metal iron to dissolve the metal iron, adding lithium carbonate, lithium hydroxide or a hydrate thereof to the solution, and calcining the reaction mixture to synthesize LiFePO₄.

2. The method for producing a cathode material for a secondary battery according to claim 1, wherein the calcining step has a first stage in a temperature range of room temperature to 300 through 450°C and a second stage in a temperature range of room temperature to the calcination completion temperature, and

the second stage of the calcining step is carried out after addition of a substance from which conductive carbon is formed by pyrolysis to the product of the first stage of the calcining step.

3. The method for producing a cathode material for a secondary battery according to claim 2, wherein the calcination is carried out after conductive carbon is added to the ingredients before the first stage of the calcining step.

4. The method for producing a cathode material for a secondary battery according to claim 1, wherein the calcining step has a first stage in a temperature range of room temperature to 300 through 450°C and a second stage in a temperature range from room temperature to the calcination completion temperature, and

the calcination is carried out after conductive carbon is added to the ingredients before the first stage of the calcining step.

5. The method for producing a cathode material for a secondary battery according to claim 2 or 3, wherein the substance from which conductive carbon is formed by pyrolysis is a bitumen.

6. The method for producing a cathode material for a secondary battery according to claim 5, wherein the bitumen is a coal pitch which has a softening point in a range of 80 to 350°C and a pyrolytic weight-loss initiation temperature in a range of 350 to 450°C and from which conductive carbon is formed by pyrolysis and calcination at a temperature of 500 to 800°C.

7. The method for producing a cathode material for a secondary battery according to claim 2 or 3, wherein the substance from which conductive

carbon is formed by pyrolysis is a saccharide.

8. The method for producing a cathode material for a secondary battery according to claim 7, wherein the saccharide is one which is decomposed at a temperature in a range of 250°C or higher to lower than 500°C and gets partially melted at least once in the course of heating from 150°C up to the temperature at which it is decomposed and from which conductive carbon is formed by pyrolysis and calcination at a temperature not lower than 500°C and not higher than 800°C.

9. The method for producing a cathode material for a secondary battery according to any one of claims 1 to 8, wherein one or more selected from the group consisting of hydrogen, water and water vapor is added at least when the temperature is in a range of 500°C or higher during the calcining step.

10. A secondary battery using the cathode material LiFePO₄ for a secondary battery produced by a method according to any one of claims 1 to 9 as a constituent component.